

WHAT IS CLAIMED IS:

1. An electrokinetic delivery system for personal use in self-administration of a medicament to a treatment site on an individual, comprising:

a device for releasable securement to an individual's finger and shaped in part to conform to at least a portion of the individual's finger;

a retainer for releasably securing the device to the individual's finger;

a self-contained power source carried by said device;

a first electrode carried by said device adjacent a distal end portion thereof and adjacent the tip of the individual's finger upon retention of the device on the individual's finger, said first electrode being in electrical contact with said power source;

a second electrode carried by said device for electrical contact with a portion of the individual's body, said second electrode being in electrical contact with said power source whereby, upon application of said first electrode to a treatment site with the medicament interposed between the first electrode and the treatment site and completion of an electrical circuit through the first electrode, the medicament or conductive carrier therefor, the treatment site, the individual's body, said second electrode and said power source, said device causes an electrical current to flow for

electrokinetically driving the medicament into the treatment site.

2. A system according to Claim 1 wherein said device in part extends generally linearly along the individual's finger, said first electrode being angled relative to said linear extending device.

3. A system according to Claim 1 wherein said distal end portion of said device is shaped to in part overlies a portion of the tip of the individual's finger to facilitate retention of the device on the individual's finger.

4. A system according to Claim 1 wherein said device includes a proximal end portion, said distal and proximal end portions being releasably secured to one another.

5. A system according to Claim 4 wherein said proximal end portion carries said power source, and mating electrical contacts carried by said distal and proximal end portions for electrically connecting said first electrode and said power source upon releasable securement of said proximal and distal portions to one another, said contacts being separable from one another upon separation of the distal and proximal end portions from one another.

6. A system according to Claim 1 wherein said device includes a proximal end portion, said distal and proximal end portions being engageable with one another to form a substantially unitary body along an extent of

the individual's finger and separable from one another, said proximal end portion carrying said power source, and electrical contacts carried by said distal and proximal end portions, respectively, for electrical contact with one another when said proximal and distal end portions are engaged with one another and electrical disconnection from one another when said proximal and distal end portions are disengaged with one another.

7. A system according to Claim 1 wherein said device is in part shaped to conform generally with the portion of the individual's finger extending from a tip thereof to a location past the first finger joint and includes a proximal end portion, said distal and proximal end portions being engageable with one another to form a substantially unitary body along the individual's finger and separable from one another, said proximal end portion carrying said power source, electrical contacts carried by said distal and proximal end portions, respectively, and being electrically connected to one another in response to engagement of said distal and proximal end portions with one another for electrically connecting said first electrode and said power source, said contacts being electrically disconnected relative to one another in response to separation of said proximal and distal end portions from one another.

8. A system according to Claim 1 wherein said second electrode is carried by said device for contact with a portion of the individual's finger.

9. A system according to Claim 1 wherein said device includes an elongated body for extending along an outer surface of the individual's finger, said distal end portion carrying said second electrode along a side of the device remote from said elongated body for engagement by a fingerprint side of the individual's fingertip, said first electrode being carried on a side of said distal end portion remote from the second electrode and the individual's fingertip, said second electrode being electrically insulated from said first electrode.

10. A system according to Claim 9 wherein said elongated body has in part a concave arcuate configuration along an underside thereof for generally conforming to an outer surface of the individual's finger.

11. A system according to Claim 9 wherein said distal end portion has an enclosure surrounding the individual's finger with at least one open end for receiving the individual's fingertip within the enclosure.

12. A system according to Claim 11 wherein said enclosure is open at opposite ends thereof.

13. A system according to Claim 9 wherein said retainer includes at least one flexible strap connected to said body for releasably securing said elongated body to the individual's finger.

14. A system according to Claim 1 wherein said device includes an elongated body extending in a

direction generally parallel to a length direction of the individual's finger, said elongated body having a concave arcuate configuration along an undersurface thereof for general conformance to an outer elongated surface of the individual's finger.

15. A system according to Claim 1 wherein said second electrode is carried by said shaped part for engagement between said device and the individual's finger portion affording electrical contact between the power source and the individual's finger through said second electrode, a substrate having a first surface and a second surface opposite said first surface, said substrate including a plurality of cells forming a plurality of apertures between said first and second surfaces for containing the medicament, said first surface of said substrate lying in contact with said first electrode for electrokinetically driving the medicament from said substrate cells into said treatment site upon application of the second surface of said substrate to said treatment site.

16. A system according to Claim 1 wherein said second electrode is carried by said shaped part for engagement between said device and the individual's finger portion affording electrical contact between the power source and the individual's finger through said second electrode, a porous substrate having a first surface and a second surface opposite said first surface and a unit dose of medicament in said substrate, said first surface of said substrate lying in contact with said first electrode for electrokinetically driving the

medicament from said substrate through said second surface into the treatment site.

17. A system according to Claim 1 wherein said second electrode is carried by said shaped part for engagement between said device and the individual's finger portion affording electrical contact between the power source and the individual's finger through said second electrode, a substrate comprised of a porous matrix and a rupturable reservoir formed of a material inert to said medicament and containing a unit dose thereof, said substrate lying in contact with said first electrode whereby, upon rupture of said reservoir, the medicament is electrokinetically driven from the porous substrate into the treatment site.

18. A system according to Claim 1 wherein said distal end portion includes a housing having a recess opening outwardly of said device, said first electrode carried by said housing adjacent a base of said recess, including a porous substrate having a first surface and a second surface opposite said first surface and a unit dose of medicament in said substrate, said first surface of said substrate lying in contact with said first electrode for electrokinetically driving the medicament from said substrate through said second surface into the treatment site.

19. A system according to Claim 1 wherein said distal end portion includes a housing, said first electrode being carried by said housing and projecting from said housing.

20. A system according to Claim 1 wherein said second electrode is carried by said shaped part for engagement between said device and the individual's finger portion affording electrical contact between the power source and the individual's finger through said second electrode, said device including an elongated body extending generally parallel to the individual's finger when extended, said distal end portion including a housing carrying said first electrode, said first electrode having a generally planar surface in a plane extending at an angle relative to the elongated body.

21. A system according to Claim 20 including a distal end portion having an enclosure surrounding the individual's finger with at least one open end for receiving the individual's fingertip within the enclosure, said housing being located on a side of said distal end portion adjacent an underside of the individual's finger with the planar surface of said first electrode facing outwardly away from the individual's finger.

22. A system according to Claim 20 including a substrate within said housing, said substrate having a first surface and a second surface opposite said first surface, said substrate including a plurality of cells forming a plurality of apertures between said first and second surfaces for containing the medicament, said first surface of said substrate lying in contact with said first electrode for electrokinetically driving the medicament from said substrate cells into said treatment

site upon application of the second surface of said substrate to said treatment site.

23. A system according to Claim 22 wherein said proximal end portion carries said power source, and mating electrical contacts carried by said distal and proximal end portions for electrically connecting said first electrode and said power source upon releasable securement of said proximal and distal portions to one another, said contacts being separable from one another upon separation of the distal and proximal end portions from one another.

24. A system according to Claim 1 including means for preventing completion of the electrical circuit in response to a predetermined number of uses of the device.

25. A system according to Claim 1 including means for preventing completion of the electrical circuit in response to a predetermined time duration corresponding to an aggregate total time usage.

26. A system according to Claim 1 including means for inactivating said device for a predetermined time period and means for reactivating said device after said predetermined time period.

27. A system according to Claim 1 wherein said device includes a proximal end portion, said distal and proximal end portions being releasably secured to one another, and means for preventing reuse of said distal end portion after a one-time use.



28. An electrokinetic delivery system for personal use in self-administration of a medicament to a treatment site on an individual, comprising:

a device having a generally ring-shaped body and a through-opening for receiving and releasably retaining the device on the finger of the individual;

a self-contained power source carried by said device;

a first electrode carried by said device in electrical contact with said power source;

a second electrode carried by said device for electrical contact with a portion of the individual's body, said second electrode being in electrical contact with said power source whereby, upon application of said first electrode to a treatment site with the medicament interposed between the first electrode and the treatment site and completion of an electrical circuit through the first electrode, the medicament or conductive carrier therefor, the treatment site, the individual's body, said second electrode and said power source, said device causes an electrical current to flow for electrokinetically driving the medicament into the treatment site.

29. A system according to Claim 28 wherein said second electrode is carried by said device along an inside surface of the ring-shaped body and exposed within said through-opening for contact with the individual's finger received therein.

30. A system according to Claim 28 wherein said generally ring-shaped body is a split ring.

31. A system according to Claim 28 including a substrate having a first surface and a second surface opposite said first surface, said substrate including a plurality of cells forming a plurality of apertures between said first and second surfaces for containing the medicament, said first surface of said substrate lying in contact with said first electrode for electrokinetically driving the medicament from said substrate cells into said treatment site upon application of the second surface of said substrate to said treatment site.

32. A system according to Claim 28 including a porous substrate having a first surface and a second surface opposite said first surface and a unit dose of medicament in said substrate, said first surface of said substrate lying in contact with said first electrode for electrokinetically driving the medicament from said substrate through said second surface into the treatment site.

33. A system according to Claim 28 including a substrate comprised of a porous matrix and a rupturable reservoir formed of a material inert to said medicament and containing a unit dose thereof, said substrate lying in contact with said first electrode whereby, upon rupture of said reservoir, the medicament is electrokinetically driven from the porous substrate into the treatment site.

34. A system according to Claim 28 including means for preventing completion of the electrical circuit in response to a predetermined number of uses of the device.

35. A system according to Claim 28 including means for preventing completion of the electrical circuit in response to a predetermined time duration corresponding to an aggregate total time usage.

36. A system according to Claim 28 including means for inactivating said device for a predetermined time period and means for reactivating said device after said predetermined time period.

37. A method of treatment by electrokinetic self-administration of a medicament into a treatment site for an individual, comprising:

providing a device shaped in part to conform to at least a portion of an individual's finger and having a self-contained power source, first and second electrodes, and a substrate in electrical contact with said first electrode and including an electrokinetically transportable medicament and an exposed contact surface;

releasably retaining the device on the individual's finger, with the second electrode in electrical contact with the individual's finger;

while the device remains retained on the individual's finger, placing the contact surface of said substrate into contact with the individual's treatment site; and

causing electrical current to flow through said first electrode, the medicament or a conductive carrier therefor, the treatment site, the individual's body, said second electrode and said power source to electrokinetically drive the medicament into the treatment site.

38. A method according to Claim 37 including providing said device with discrete separable distal and proximal portions having respective electrical contacts, connecting said distal and proximal portions to one another and electrically coupling the respective electrical contacts of the distal and proximal portions with one another to enable flow of the electrical current.

39. A method according to Claim 37 including providing said device with a concave surface for contact about the individual's finger and providing said second electrode along said arcuate surface for contact with the individual's finger.

40. A method according to Claim 37 including providing said device with discrete separable distal and proximal portions having respective electrical contacts connecting said distal and proximal portions to one another, and electrically coupling said contacts with one another to enable an electrical circuit between said first and second electrodes and through said power source.

41. A method according to Claim 37 including providing said device with discrete separable distal and

proximal portions and activating said device in response to connecting said distal and proximal portions to one another.

42. A method according to Claim 41 including providing said first and second electrodes on said distal portion.

43. A method according to Claim 42 including providing said second electrode along a concave surface of said distal portion for electrical contact with the individual's finger, and providing said first electrode along an underside of said distal portion with said substrate facing outwardly of said distal portion.

44. A method according to Claim 41 including providing said second electrode along a concave surface of said proximal portion and providing said first electrode along an underside of said distal portion with said substrate facing outwardly of said distal portion.